



Docket No. 5925.36003

PATENTS  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In Re Patent Application Of	:
Robert McKinnon, Jr.	:
Serial No. 09/579,630	:
Filing Date: May 26, 2000	:
"METER BOX LID"	:
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Examiner: N. Eloshway  
Group Art Unit: 3727

DECLARATION OF ROBERT MCKINNON, JR.

Commissioner for Patents  
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1. I am Robert McKinnon, Jr., the inventor of the subject patent application. I am over 21 years of age and am competent to make this declaration.
2. My family owns DFW Plastics, Inc., the assignee of this application. My father, Robert McKinnon, has been involved in plastics manufacturing since the 1970's. DFW Plastics has manufactured plastic utility boxes and lids since the 1970's.
3. I graduated from high school and began working in construction. I was in construction for 18 years. During that time, I operated backhoes, was a crew chief and owned my own company. I installed utility boxes and lids. I saw what various cities required. Most utility boxes and lids are bought by cities. I saw what type of utility boxes and lids worked and did not work. Cities only buy utility boxes and lids that meet their specifications. After

construction, I then worked in the oil field for 6 years where I laid pipeline and installed tank batteries.

4. For the last 12 years, I have been employed by DFW Plastics where I am manager of the manufacturing plant. I oversee manufacturing and design new products and manufacturing processes for plastic utility boxes and lids. I design molds and work with different types of plastic under different molding conditions. I am familiar with various types of plastic manufacturing such as injection molding, compression molding, rotational molding and blow molding. Over the years, I have discussed plastic manufacturing with my father as well, tapping into his experience.

5. The invention is on lids for utility boxes, such as water meter boxes. Utility boxes are buried in the ground, with the tops of the boxes near or at ground level. The lids cover the boxes and the meters inside. As an example, a water meter box contains a water meter that is tied into the water line entering a building like a house or a business.

6. The lids are subject to high loads. The lids and their utility boxes can be located in driveways and alleys, where vehicles run over the lids. The lids can also be stepped on by people.

7. Before my invention, lids for utility boxes were made of cast iron. These lids typically have a load strength of 10,000 pounds or more. That is, they will withstand a truck rolling over the lid without breaking. There also existed, before my invention, lids made of injection molded plastic. An injection molded plastic lid is shown in McKinnon, U.S. Patent No. 4,163,503, obtained by my father. These lids have a strength of only about 1,200 pounds. They are used in lawns and other areas known as greenbelts

or parkways where vehicles are not usually permitted. Injection molded plastic lids are not designed to withstand a truck rolling over them.

8. I began to develop a stronger plastic lid for utility boxes. If successful, the lid could compete with cast iron lids. I noticed that the existing injection molded lids had a top wall thickness of less than  $\frac{1}{2}$  inch, with lots of ribbing underneath the top wall. The ribbing was in the shape of a grid and provided strength to the top wall. My first attempts were to make a rotational molded plastic lid that was thicker than the existing injection molded plastic lids. The results of my attempts produced lids that were an inch or more in thickness. The lids were solid with no ribbing. The thick rotational molded lids had warped top and bottom surfaces. The lids were not very strong due to bubbles and other imperfections inside the plastic.

9. My next attempts were to utilize compression molding. Heated plastic material was placed into a compression mold. The mold was then closed and squeezed with a compression force. The compression force squeezed bubbles and air pockets from the plastic. The lids formed a solid block over an inch in thickness. The solid compression molded lids had flat tops and bottom surfaces, which solved the warping problem. A new problem cropped up though. I discovered that the plastic inside the lids was not fully cured due to the thickness of the lids. When the lids were dropped onto a concrete surface, they broke. Dropping the lids is a simple test of strength and durability.

10. I wanted to solve the curing problem because I believed a thick solid lid would have the high strength I was looking for. My next attempts were targeted at solving the curing problem. The compression molds were

modified to create recesses or indentions in the bottom side of the lid. This would deliver heat from the mold to the plastic interior and allow curing. The results proved satisfactory and form the invention. The lids have a thickness of 1-1/2 inches or more, and because of the recesses the plastic is fully cured inside the lids. When dropped on a concrete surface, the lids do not break or even crack. The lids are strong, capable of supporting loads of 8,000 pounds, or more, even as high as 20,000 pounds. This is a big improvement over the injection molded lids. Because the lids of my invention are so strong, they can replace cast iron lids and be used in driveways, alleys and even streets. If a truck rolls over my lid, it will not break.

11. I have reviewed the following U.S. patents: Waters, U.S. Patent No. 4,488,669; Wischhusen, U.S. Patent No. 5,016,756; Bonnema, U.S. Patent No. 4,726,490; and Thornbloom, Jr., U.S. Patent No. 3,979,007. I understand that the Examiner says that my lid is not patentable because of the patents. The patents all have lids that are double wall, not solid. The lids of Waters, Wischhusen and Thornbloom are not for use on utility boxes. Waters is a lid for a tool box, Wischhusen is a food container lid and Thornbloom is an ice chest lid that is foamed for insulation. These lids are not designed for people to stand on them or trucks to roll over them. The lid of Bonnema is for a sump box, which would be buried in the ground but is mainly in basements. Bonnema even says that someone could stand on the lid. The Bonnema lid is hollow and I believe is even weaker than the existing injection molded plastic lid. Based on my experience in plastics manufacturing, I would not use the lids of Waters, Wischhusen, Bonnema or

Thornbloom for a utility box. I would not look to these patents to design a lid for a utility box. I believe these lids would be a step backward from injection molded utility box lids, not forward because they would break at under 1200 pounds.

12. I see that Thornbloom says the ice chest lid can be blow molded or solid. Based on my experience in plastics manufacturing, the fact that Thornbloom uses a solid lid would not lead me to a solid utility box lid. I believe that a solid lid on an ice chest would be thin to keep the weight down. The ice chest has handles, so it is designed to be picked up, with food and ice inside. I would not think to use an ice chest lid for a utility box because the ice chest lid does not need to be as strong as a utility box lid. Also, I would think that the solid lid in Thornbloom would have air bubbles. Air bubbles would provide insulation, but would decrease the lid strength.

13. None of the patents teach compression molding a lid for a utility box. The Waters lid is double-walled probably to be light in weight. It cannot be compression molded. The Wischhusen lid is double-walled with foam inside. It cannot be compression molded. The Bonnema lid is double-walled and is probably blow molded or rotational molded. It cannot be compression molded. The Thornbloom patent does not say how to make a solid lid. Based on my experience in plastic manufacturing, I would not look to these patents to design a compression molded lid.

14. Because the patents do not have compression molded lids for utility boxes, none of the patents care about curing the plastic. All of the patents show lids with thin walls of plastic. The patents do not face the problem of how to cure plastic in a thick member. Some of the patents do show

recesses, but not for the same purpose as my recesses. The lid of Waters has indentations 40 where the double walls are stitched together for strength. I am familiar with stitching together plastic walls for strength. I believe that stitching double walls together would not produce a satisfactory lid for a utility box and is different from my lid. Stitching walls together proves that the lid has hollow spaces and is not solid. My lid is solid. The Wischhusen lid has recesses for food containers. None of the patents solve the problem of how to cure plastic in thick members. Based on my experience, I would not look to the patents to design a compression mold lid of high strength for utility boxes.

15. I hereby declare that all statements made herein of my own personal knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any resulting patent issuing thereon.

2/12/04  
Date

Robert McKinnon Jr.  
By: Robert McKinnon, Jr.

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